

**§ 84.1132 Breathing tubes; minimum requirements.**

(a) Flexible breathing tubes used in conjunction with respirators shall be designed and constructed to prevent:

- (1) Restriction of free head movement;
- (2) Disturbance of the fit of facepieces, mouthpieces, hoods, or helmets;
- (3) Interference with the wearer's activities; and
- (4) Shutoff of airflow due to kinking, or from chin or arm pressure.

**§ 84.1133 Harnesses; installation and construction; minimum requirements.**

(a) Each respirator shall, where necessary, be equipped with a suitable harness designed and constructed to hold the components of the respirator in position against the wearer's body.

(b) Harnesses shall be designed and constructed to permit easy removal and replacement of respirator parts, and, where applicable, provide for holding a full facepiece in the ready position when not in use.

**§ 84.1134 Respirator containers; minimum requirements.**

(a) Except as provided in paragraph (b) of this section each respirator shall be equipped with a substantial, durable container bearing markings which show the applicant's name, the type of respirator it contains, and all appropriate approval labels. Except for dust, fume, and mist respirators, the commercial designation of the respirator it contains shall be shown.

(b) Containers for single-use respirators may provide for storage of more than one respirator, however, such containers shall be designed and constructed to prevent contamination of respirators which are not removed, and to prevent damage to respirators during transit.

(c) Containers for gas masks combinations shall be designed and constructed to permit easy removal of the mask.

**§ 84.1135 Half-mask facepieces, full facepieces, hoods, helmets, and mouthpieces; fit; minimum requirements.**

(a) Half-mask facepieces and full facepieces shall be designed and constructed to fit persons with various facial shapes and sizes either:

(1) By providing more than one facepiece size; or

(2) By providing one facepiece size which will fit varying facial shapes and sizes.

(b) Full facepieces shall provide for optional use of corrective spectacles or lenses, which shall not reduce the respiratory protective qualities of the respirator.

(c) Hoods and helmets shall be designed and constructed to fit persons with various head sizes, provide for the optional use of corrective spectacles or lenses, and insure against any restriction of movement by the wearer.

(d) Mouthpieces shall be equipped with noseclips which are securely attached to the mouthpiece or respirator and provide an airtight seal.

(e) Facepieces, hoods, and helmets shall be designed to prevent eyepiece fogging.

(f) Half-mask facepieces shall not interfere with the fit of common industrial safety corrective spectacles, as determined by the Institute's facepiece tests in §§ 84.1141, 84.1142, and 84.1156(b).

**§ 84.1136 Facepieces, hoods, and helmets; eyepieces; minimum requirements.**

(a) Facepieces, hoods, and helmets shall be designed and constructed to provide adequate vision which is not distorted by the eyepieces.

(b) All eyepieces of gas masks combinations shall be designed and constructed to be impact and penetration resistant. Federal Specification, Mask, Air Line: and Respirator, Air Filtering, Industrial, GGG-M-125d, October 11, 1965, with interim amendment-1, July 30, 1969, is an example of an appropriate standard for determining impact and penetration resistance. Copies of GGG-M-125d may be obtained from the

## § 84.1137

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### **§ 84.1137 Inhalation and exhalation valves; minimum requirements.**

(a) Inhalation and exhalation valves shall be protected against distortion.

(b) Inhalation valves shall be designed and constructed and provided where necessary to prevent excessive exhaled air from adversely affecting filters, cartridges, and canisters, except where filters of dust, fume, and mist respirators are specifically designed to resist moisture as prescribed in § 84.1145.

(c) Exhalation valves shall be:

- (1) Provided where necessary;
- (2) Protected against damage and external influence; and
- (3) Designed and constructed to prevent inward leakage of contaminated air.

### **§ 84.1138 Head harnesses; minimum requirements.**

(a) All facepieces shall be equipped with head harnesses designed and constructed to provide adequate tension during use and an even distribution of pressure over the entire area in contact with the face.

(b) Facepiece head harnesses, except those employed on single-use dust, fume, and mist respirators, shall be adjustable and replaceable.

(c) Mouthpieces shall be equipped, where applicable, with adjustable and replaceable harnesses, designed and constructed to hold the mouthpiece in place.

### **§ 84.1139 Air velocity and noise levels; hoods and helmets; minimum requirements.**

Noise levels generated by the respirator will be measured inside the hood or helmet at maximum airflow obtainable and shall not exceed 80 dBA.

### **§ 84.1140 Dust, fume, and mist respirators; performance requirements; general.**

Dust, fume, and mist respirators and the individual components of each such device shall, as appropriate, meet the requirements for performance and protection specified in the tests described

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in §§ 84.1141 through 84.1152 and prescribed in Tables 12 and 13.

### **§ 84.1141 Isoamyl acetate tightness test; dust, fume, and mist respirators designed for respiratory protection against fumes of various metals having an air contamination level not less than 0.05 milligram per cubic meter; minimum requirements.**

(a) The respirator will be modified in such a manner that all of the air that normally would be inhaled through the inhalation port(s) is drawn through an efficient activated charcoal-filled canister, or cartridge(s), without interference with the face-contacting portion of the facepiece.

(b) The modified respirator will be worn by persons for at least 2 minutes each in a test chamber containing 100 parts (by volume) of isoamyl-acetate vapor per million parts of air.

(c) The odor of isoamyl-acetate shall not be detected by the wearers of the modified respirator while in the test atmosphere.

### **§ 84.1142 Isoamyl acetate tightness test; respirators designed for respiratory protection against dusts, fumes, and mists having an air contamination level less than 0.05 milligram per cubic meter, or against radionuclides; minimum requirements.**

(a) The applicant shall provide a charcoal-filled canister or cartridge of a size and resistance similar to the filter unit with connectors which can be attached to the facepiece in the same manner as the filter unit.

(b)(1) The canister or cartridge will be used in place of the filter unit, and persons will each wear a modified half-mask facepiece for 5 minutes in a test chamber containing 100 parts (by volume) of isoamyl-acetate vapor per million parts of air.

(2) The following work schedule will be performed by each wearer in the test chamber:

- (i) Two minutes walking, nodding, and shaking head in normal movements; and
- (ii) Three minutes exercising and running in place.

(3) The facepiece shall be capable of adjustment, according to the applicant's instructions, to each wearer's